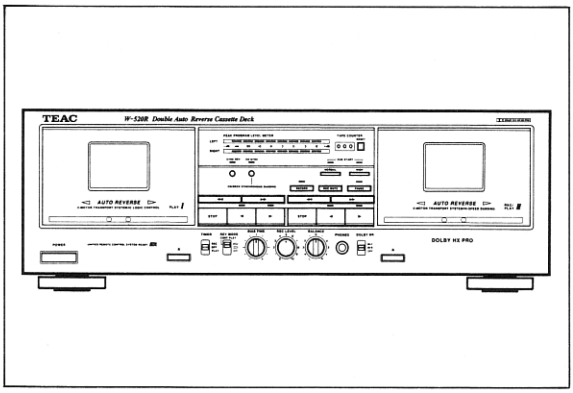
TEAC®

9101388000

W-520R

Double Auto Reverse Cassette Deck



OWNER'S MANUAL

Thanks for buying a TEAC.
Read this manual carefully to get the best performance from this unit.

This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.
Model number _____
Serial number _____

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

0491 · M-0531A

CAUTION:

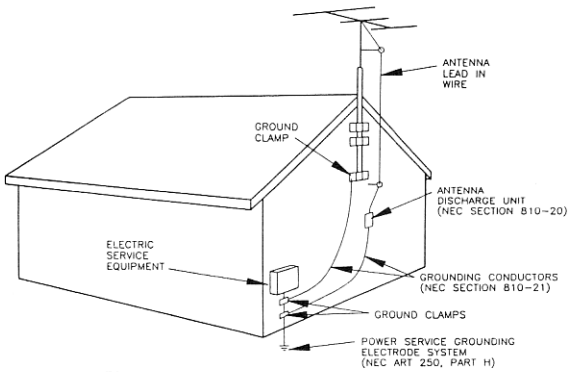
- **Read all of these instructions.**
- **Save these instructions for later use.**
- **Follow all warnings and instructions marked on the audio equipment.**

1. **Read Instructions** - All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions** - The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** - All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** - All operating and use instructions should be followed.
5. **Water and Moisture** - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
6. **Carts and Stands** - The appliance should be used only with a cart or stand that is recommended by the manufacturer.

6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. **Wall or Ceiling Mounting** - The applicance should be mounted on a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat** - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. **Power Sources** - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. **Grounding or Polarization** - Precautions should be taken so that the grounding or polarization of the appliance is not defeated.
12. **Power-Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **Cleaning** - The appliance should be cleaned only as recommended by the manufacturer.
14. **Power Lines** - An outdoor antenna should be located away from power lines.
15. **Outdoor Antenna Grounding** - If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70 - 1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure below.

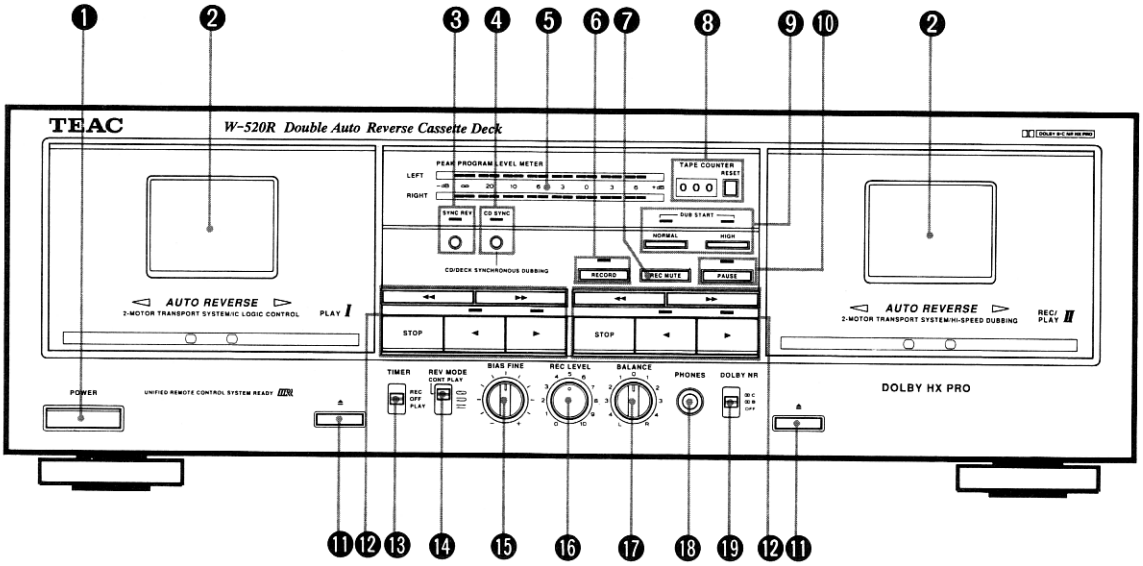
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)

NEC – NATIONAL ELECTRICAL CODE

(Continued on page 4)

FRONT PANEL



The deck consumes a small amount of power when it is plugged into an AC outlet, even when its POWER switch is in the OFF position.

❶ POWER Switch
❷ Cassette Holder (TAPE I/TAPE II)
❸ SYNC REV (Reverse) Button
❹ CD SYNC Button
❺ PEAK PROGRAM LEVEL METER
❻ RECORD Button (TAPE II only)
❼ REC (Record) MUTE Button (TAPE II only)
❽ TAPE COUNTER and RESET Button (TAPE II only)
❾ DUB (Dubbing) START Button
❿ PAUSE Button (TAPE II only)
⓫ Eject Button (TAPE I/TAPE II)
⓬ Tape Operation Buttons (TAPE I/ TAPE II)
◄◄ : Rewind Button
STOP
◄ : Reverse Play Button
► : Forward Play Button
►► : Fast Forward Button
⓭ TIMER Switch
⓮ REV (Reverse) MODE Switch
⓯ BIAS FINE Control (TAPE II only)
⓰ REC (Record) LEVEL Control (TAPE II only)
⓱ BALANCE Control (TAPE II only)
⓲ PHONES Jack
⓳ DOLBY NR Select Switch

16. **Nonuse Periods** - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

17. **Object and Liquid Entry** - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

18. **Damage Requiring Service** - The appliance should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped, or the enclosure damaged.

19. **Servicing** - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

PRECAUTIONS

Environment

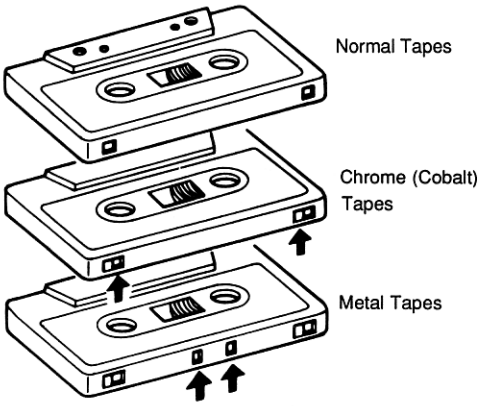
Avoid using the deck in the following conditions:

- At high temperatures (near a heater, exposed to direct sunlight, etc.).
- At extremely low temperatures.
- Where there is excessive humidity.
- In a dusty atmosphere.
- Where power line voltage fluctuations are severe (in which case the use of a voltage regulator may be advisable).

Cassette Tape

Tape Selection:

For the automatic tape select function to work properly, metal and chrome (cobalt) tapes must have identification holes.



- Tape position identification holes.

Tape Handling:

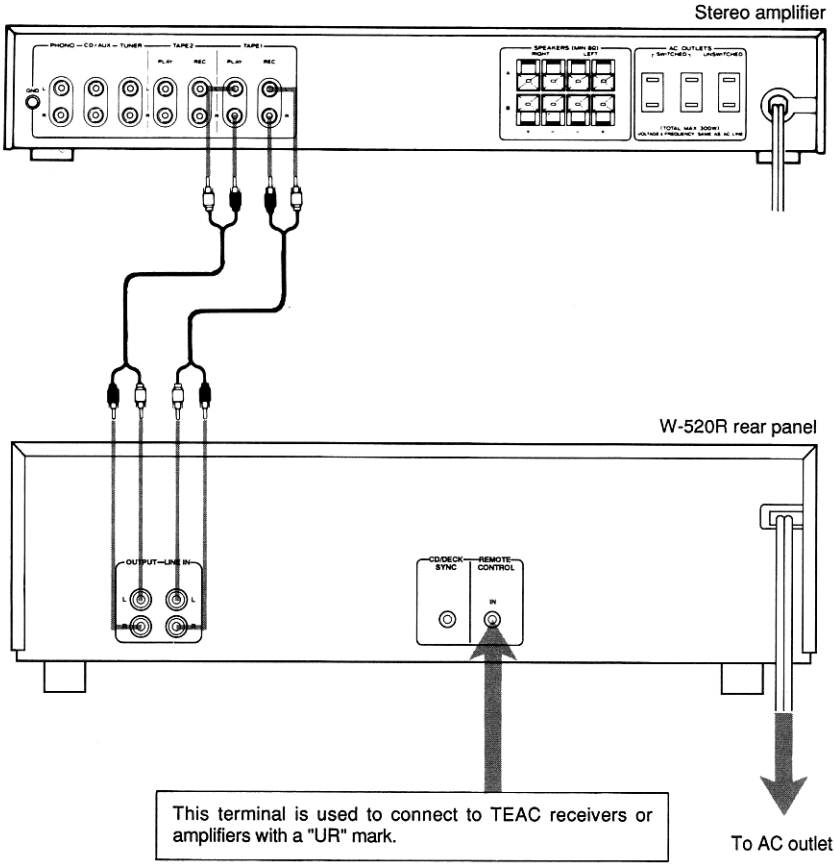
Do not store tapes in the following places:

- On top of heaters, exposed to direct sunlight or in any other places with high temperatures.
- Near speakers, on TV sets or amplifiers or where they would be exposed to strong magnetic fields.
- Where humidity is high and in dirty, dusty places.
- Avoid dropping or subjecting cassettes to excessive shocks.
- As C-120 tapes are physically weak and could become entangled in the transport mechanism, do not use them.

* Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
"DOLBY", the double-D symbol DD and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

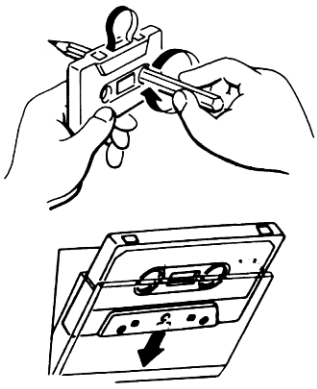
CONNECTIONS

- Turn off the power switches of all equipment before making connections.
- Read the instructions of each component you intend to use with the deck.
- For the connection of the REMOTE CONTROL jack, refer to the owner's manual of the component to which the W-520R is to be connected.



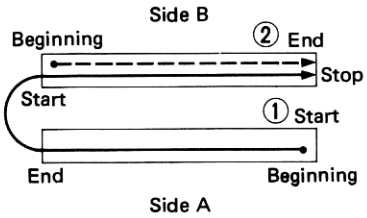
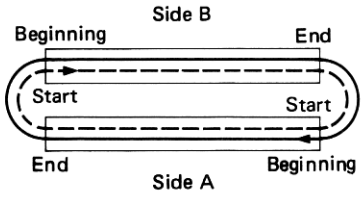
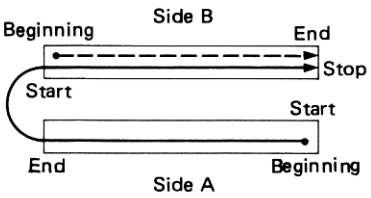
Loading a Cassette Tape

1 Use your finger or a pencil to turn the cassette's hub and take up any slack tape.
Note: Avoid touching the tape. Fingerprints attract dust and dirt.
2 Press the eject button (⏏)* to open the cassette compartment door.
3 Load the cassette tape with its open edge facing down.
4 Gently close the compartment door



*** Notes:**
- The cassette holder cannot be opened during recording or playback.
- If the power has been switched off during play or recording, ejecting the cassette may be impossible. In such a case, switch the power on and press the eject button again.

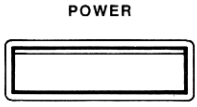
Tape Travel Depending on Setting of REV MODE Switch

Setting	Tape Travel
⇄	When the tape reaches the end, playback or recording is released.
⇉	 ① During forward play or recording, when the end of tape is reached, the direction of tape running is reversed to play or record in the opposite direction. Reverse play or recording will continue to the end of the other side, at which point play or recording is released. ② During reverse play or recording, when the tape reaches the end, play or recording is released.
⇉	**PLAY mode (Tapes loaded in TAPE I or II)**  During either forward or reverse play, when the end of tape is reached, the direction of tape running is reversed and play continues in the opposite direction. In this way, the two sides of the tape are played back continuously; the tape will stop after 5 cycles.
⇉	**PLAY mode (Tapes loaded in TAPE I and II)** — **CONT PLAY (Continuous Playback)** — Refer to "Continuous Playback Operation" chart on page 9.
⇉	**RECORD mode (TAPE II only)**  • Operation is same as ⇉ .

Playback with TAPE I or TAPE II

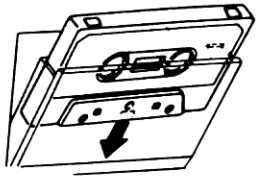
1. Check that the TIMER switch is OFF.

2. Press the POWER switch to ON.

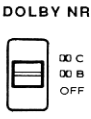


3. Set the REV MODE switch to the required tape travel mode, referring to the chart "Tape Travel Depending on Setting of REV MODE Switch" on page 7.

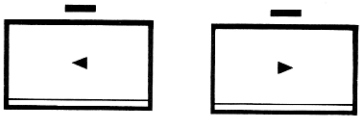
4. Load a pre-recorded cassette in TAPE I or II.



5. Select the appropriate DOLBY NR system.



6. Press the ◄ or ► button for TAPE I or II to start playback.

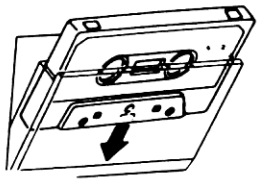


7. Adjust the volume with the amplifier's volume control.

- To stop playback, press the STOP button.

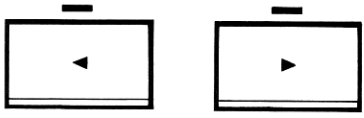
Continuous Playback

1. Load pre-recorded cassettes in TAPE I and TAPE II.



2. Set the necessary controls and switches but not the ◄ or ► buttons, referring to "Playback with TAPE I or TAPE II" on the left.
3. Set the REV MODE switch to the CONT PLAY (⊂⊃) position.

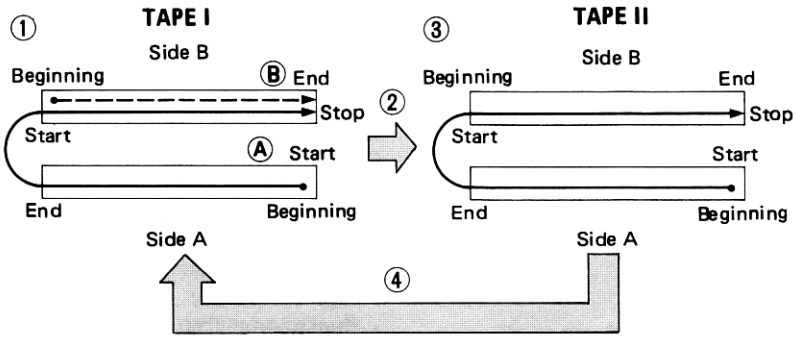
4. Press the ◄ or ► button of the deck to be played back first.



5. Tapes will be played back continuously, according to the chart on page 9.

- To stop continuous play before 5 cycles have been completed, press the STOP button of either deck.

Continuous Playback Operation



① Ⓐ When playback starts in the forward direction, at the end of tape, the tape is reversed to play the other side. At the end of this side, playback is released.

Ⓑ When playback starts in the reverse direction, at the end of tape, TAPE I is released.

② Control is transferred to TAPE II.

③ Playback starts in the forward direction; at the end of tape, it is reversed and the other side is played back.

④ At the end of tape, control is transferred back to TAPE I, which plays both sides.

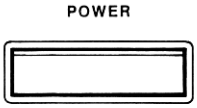
This sequence ① - ④ is repeated for 5 cycles.

Recording with TAPE II

Recording from a stereo system:

1. Set the TIMER switch to OFF.

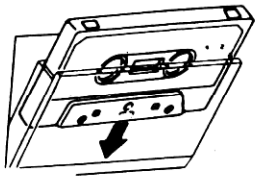
2. Press the POWER switch to ON.



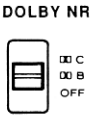
3. If you want to make a bi-directional recording, set the REV MODE switch to the ⇄ position.

4. Load a recordable cassette in TAPE II.

- Check that the safety tabs on the spine of the cassette are in place. If they have been broken off, block the holes with adhesive tape.

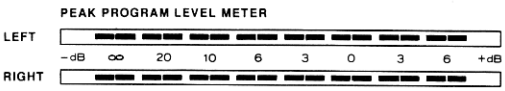


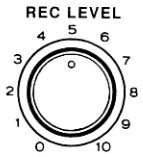
5. Select the desired DOLBY NR system.



6. Press the PAUSE button (its indicator lights), then the RECORD button (its indicator lights). The tape travel direction indicator above the ◄ or ► button will light.

7. Adjust the recording level with the REC LEVEL control so that the loudest sound to be recorded just makes the meters briefly reach around the "0 dB" point (for Normal or Chrome tapes) or the "+3 dB" point (for Metal tapes).

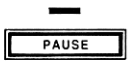




8. To adjust the balance of the input signal, use the BALANCE control.

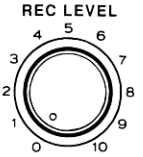
9. Press the PAUSE button again to start recording.

- To stop recording temporarily, press the PAUSE button. To restart the tape, press it again.
- To stop recording, press the STOP button.



Erasing

Anything previously recorded on the tape will automatically be erased when you make a new recording on it. It can also be erased by "recording" on it with the REC LEVEL control set to "0".



Using the BIAS FINE Control

With this control in its center position, the bias current will be the standard for the type of tape loaded. Turning the control toward "+" increases the amount of bias current which slightly decreases high-frequency response. Turning it toward "–" decreases the amount of bias current for a noticeable increase in high-frequency response.

1. Make a recording from a disc, etc.
2. After making a short recording, rewind the tape to the beginning of the recorded section, then play it back to monitor the reproduced sound.
3. Compare the monitored sound with the original; if there is a noticeable difference, adjust the BIAS FINE control and make another trial recording.
4. Repeat steps 1 through 3 until the optimum setting of the BIAS FINE control is obtained, so that the recording sounds as close as possible to the original.

Record Muting Operation (TAPE II only)

- **Automatic spacing operation for 4-second blanks (during recording)**
  Press the REC MUTE button during recording. The tape movement continues and a blank space of about 4 seconds is recorded (the RECORD indicator blinks). The deck then enters the record-pause mode automatically (both the RECORD and PAUSE indicators light).
  To restart recording, press the PAUSE button (the PAUSE indicator goes off).
- **Automatic spacing operation for 4-second blanks (during record-pause)**
  In the record-pause mode, pressing the REC MUTE button will initiate the above record-muting operation automatically. The deck then returns to the record-pause mode.
- **For a blank of more than 4 seconds**
  During recording, hold the REC MUTE button depressed for longer than 4 seconds. A blank space will be left as long as the button is pressed. Release the button to enter the record-pause mode. To restart recording, press the PAUSE button.
- **For a blank of less than 4 seconds**
  After pressing the REC MUTE button during recording, press the PAUSE button before 4 seconds has elapsed. The deck will stop and enter the record-pause mode at the point at which the PAUSE button is pressed. To restart recording, press the PAUSE button again.

Note:

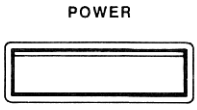
- During record muting operation (while the RECORD indicator is blinking), pressing the REC MUTE button again will release the record muting operation and recording will restart without stopping the tape.

Dubbing (Copying from TAPE I to TAPE II)

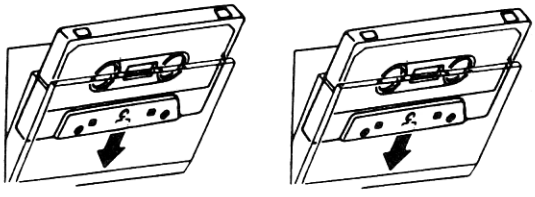
To dub the entire recorded section of a pre-recorded cassette

1. Set the TIMER switch to OFF.

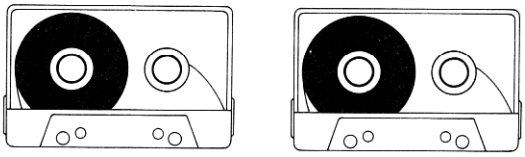
2. Press the POWER switch to ON.



3. Load the pre-recorded cassette into TAPE I and a recordable cassette into TAPE II.



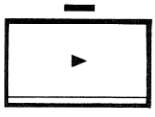
4. Fully rewind both cassettes so their tapes are taken up on their left reels.



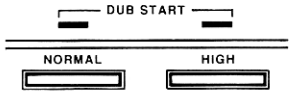
5. Set the REV MODE switch to the desired position.

   ⇄ : Dubbing will be performed for one side only.
   ⇉ : Dubbing will be stopped after both sides have been dubbed.

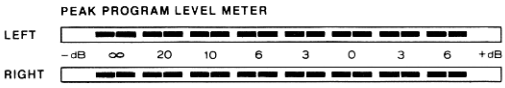
6. Set both decks to the ► direction.



7. Press the DUB START HIGH or NORMAL button to start dubbing. The indicator corresponding to the button pressed will light.
   NORMAL: Dubbing is performed at normal speed.
   HIGH: Dubbing is performed at twice normal speed.



8. The PEAK PROGRAM LEVEL METER indicates the TAPE I signal levels; the recording levels of TAPE II will be set automatically (at the same levels as TAPE I).



9. After dubbing is completed, both decks stop automatically, according to the setting of the REV MODE button.
10. To stop dubbing, press either of the STOP buttons.

Notes:

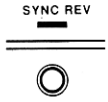
- The settings of the REC LEVEL control and DOLBY NR switch are ignored during dubbing as they have no effect.
- The ◄◄, ◄ , ► and ►► buttons do not function during NORMAL speed or HIGH speed dubbing. Also, REC MUTE and PAUSE do not function during HIGH speed dubbing.
- The sound quality of the dubbed tape may be slightly worse than that of the original tape. For this reason, multigeneration dubbing is not recommended.
- If there is a TV set near the W-520R during high speed dubbing, it is possible that the TV's horizontal scanning frequency (15.75 kHz) may be recorded on the tape. If this occurs or to prevent it in advance, dub at normal speed, switch off the television or keep the deck a reasonable distance away from the TV.

Synchro reverse dubbing

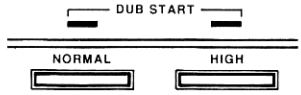
The SYNC REV button allows both decks to be reversed at exactly the same time during dubbing. This function is convenient when using tapes with different lengths, to dub a tape with exactly the same contents as the original.

1. Set the tape running direction of both decks to the ► (forward) direction, and set the REV MODE switch to the ⇄ position.

2. Press the SYNC REV button (the indicator above the button will light).



3. Press either of DUB START buttons (HIGH or NORMAL).



4. The tapes in TAPE I and II travel as illustrated in the chart "Synchro Reverse Dubbing Operation" on page 13.

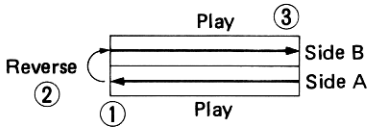
Notes:

- If the original tape is shorter than the dubbed tape, blank sections will be left at both ends of the dubbed tape. To prevent this, use tapes with the same length as far as possible.
- During high-speed dubbing with the SYNC REV button engaged, when either deck stops at the end of tape, the other deck performs normal-speed running (playback or recording) till the end of tape, at which point both decks are reversed and high-speed dubbing is restarted.

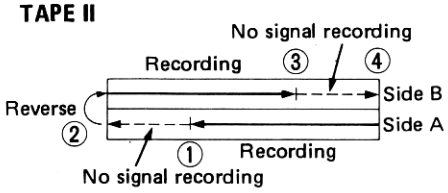
Synchro Reverse Dubbing Operation

TAPE I tape shorter than TAPE II

TAPE I



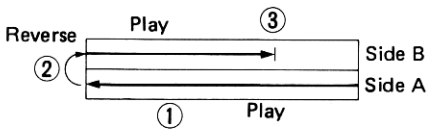
TAPE II



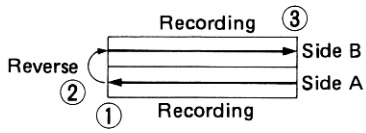
① When TAPE I reaches the end of the forward side, TAPE I stops and TAPE II enters the "no signal recording" mode.
② When TAPE II reaches the end, both TAPE I and II are reversed simultaneously then TAPE I resumes reverse play and TAPE II resumes recording.
③ When TAPE I reaches the end of the reverse side, TAPE I stops and TAPE II enters the "no signal recording" mode.
④ When TAPE II reaches the end, the deck stops.

TAPE I tape longer than TAPE II

TAPE I



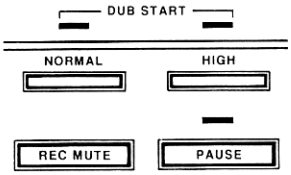
TAPE II



① When TAPE II reaches the end of forward side, TAPE II enters the record-pause mode for the reverse side, while TAPE I continues playback.
② When TAPE I reaches the end, TAPE I and II start reverse play and recording simultaneously.
③ When TAPE II reaches the end of the reverse side, both TAPE I and II stop simultaneously.

Manual editing with REC MUTE and PAUSE

During normal-speed dubbing, you can edit the dubbed tape as required using the REC MUTE and PAUSE buttons. For example, you can record only the required tunes from TAPE I to TAPE II skipping unwanted tunes.



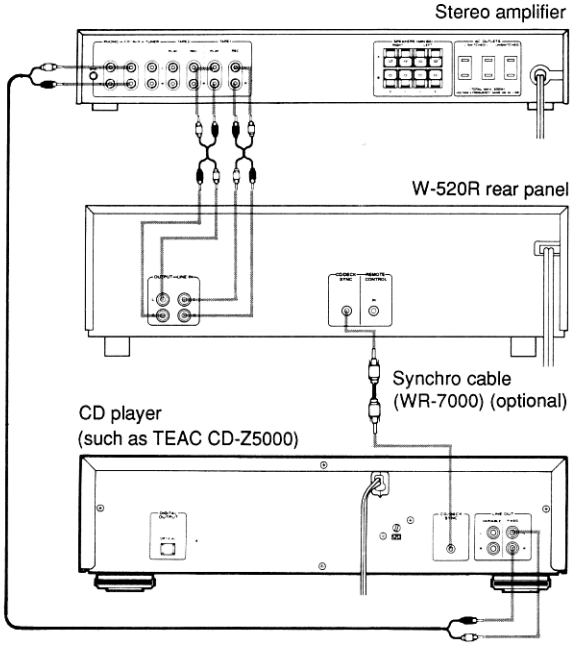
- During normal-speed dubbing, when the PAUSE button is pressed, TAPE II enters the record-pause mode while TAPE I continues playback. While listening to the sound from TAPE I, when it reaches a section you want to dub, press the PAUSE button again to restart recording on TAPE II.
- During normal-speed dubbing, when the REC MUTE button is pressed, TAPE II enters the record muting operation as in normal recording. To restart recording on TAPE II, press the PAUSE button.

CAUTION:
Recording pre-recorded tapes, records, or other published or broadcast material may infringe copyright laws. Check before recording.

CD Synchro Dubbing

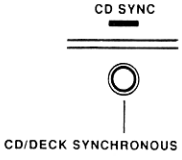
By connecting the deck to a TEAC CD synchro compatible CD player (such as the CD-Z5000 or CD-P4000) which has a CD/DECK SYNC terminal on its rear panel, dubbing (recording) synchronized with the CD player is possible.

1. Connect the deck's CD/DECK SYNC terminal to the CD player's CD/DECK SYNC terminal using an optional cable (WR-7000) as illustrated below.



2. Perform programming of the "time edit", etc. functions of the CD player beforehand (refer to the instructions of the CD player).
3. Set the source to CD using the amplifier's source select buttons.
4. Set the recording level as explained in step 7, of "Recording with TAPE II" on page 10.

5. Set the deck and the CD player to the stop mode.
6. Press the CD SYNC button of the deck.



The CD player will start automatically approx. 1 sec after the deck starts recording and dubbing will be performed. (The CD SYNC indicator lights.)

Start of CD synchro dubbing

The shaded portions (▭) indicate the CD synchro dubbing mode in the following.

Deck's CD SYNC button ON

Deck operation	Stop	Recording
CD player operation	Stop	Playback

To stop temporarily during dubbing:

To temporarily stop CD synchro dubbing

(A) Press the STOP button of the deck. The CD player will return to the beginning of the current tune and pause there. To restart, press the deck's CD SYNC button.

(A: Operation of the deck)

STOP button ON — CD SYNC button ON

Deck operation	Recording	Stop	Recording
CD player operation	Playback	Return to the beginning of the tune, then pause.	Playback

(B) Press the stop button of the CD player. The deck enters the rec/pause mode. To restart, press the CD player's play button.

(B: Operation at the CD player)

Deck operation	Recording	Rec/pause	Recording
CD player	Playback	Stop	Playback

STOP button ON — PLAY button ON

* When the CD player has entered the pause mode, it stands by after returning to the beginning of the tune that has just been played.

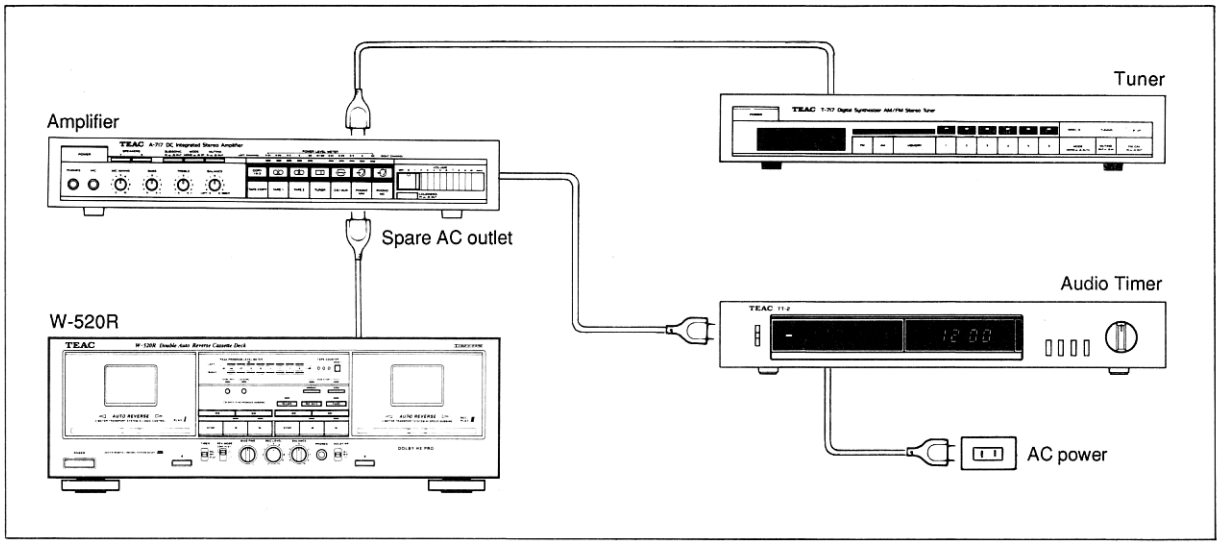
* When recording is done up to the end of the tape, the CD player stands by after returning to the beginning of the tune that has just been played.

Note

If the CD player is connected to the stereo amplifier using an optical cable, synchro dubbing is not possible. If synchro dubbing is required, you must connect the deck's analog output using pin plug cords.

Timer-Controlled Operation

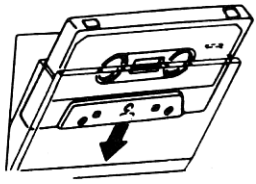
By using the W-520R with an audio timer, tapes can be recorded or played back at any preset time. If tapes are loaded in both decks, you can also start continuous playback in this way.



Timer recording (TAPE II only)

Recording a broadcasting program:

1. Connect the deck and stereo system to a commercially available audio timer as shown in the diagram.
2. Set the power switches of all components to ON.
3. Load a recordable cassette in TAPE II.

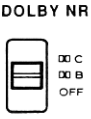


4. Set the REV MODE switch to the required position. (Refer to "Tape Travel Depending on Setting of REV MODE Switch" on page 7.)

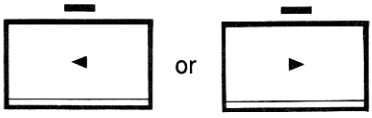
5. Set the TIMER switch to the REC position.

6. Tune to the broadcasting station to be recorded.
7. Press PAUSE then RECORD to set the deck to the record-pause mode.

8. Adjust the recording level with the REC LEVEL control as explained in step 7 of "Recording with TAPE II" on page 10.
9. Set the DOLBY NR switch as required.



10. Set the tape running direction to start recording using the ◄ or ► button of TAPE II.

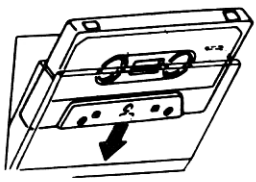


11. Set the audio timer to the required start (power on) and stop (power off) times. When this setting is completed, the power to all components will be switched off.

When the preset start time is reached, power will be supplied and recording will start automatically.

Timer playback

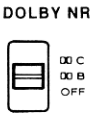
1. Connect the deck and stereo system to a commercially available audio timer as shown in the diagram.
2. Set the power switches of all components to ON.
3. Load pre-recorded cassette(s) in TAPE I or II (or both).



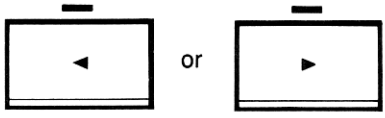
4. Set the REV MODE switch to the required position. (Refer to "Tape Travel Depending on Setting of REV MODE Switch" on page 7.)

5. Set the TIMER switch to the PLAY position.

6. Set the DOLBY NR switch as desired.



7. Set the tape running direction in which playback is to start using the ◄ or ► button.



8. Set the audio timer to the required start (power on) and stop (power off) times, When this setting is completed, the power to all components will be switched off.

When the preset start time is reached, power will be supplied and playback will start automatically.

Notes:

- The tape running direction just before the power is turned off will be maintained when the power is turned on again. Remember this when setting for timer-controlled operation.
- When cassettes are loaded in both decks, TAPE I will start playback first because it has priority.
- Be sure to set the TIMER switch to the OFF position after timer operation is completed.

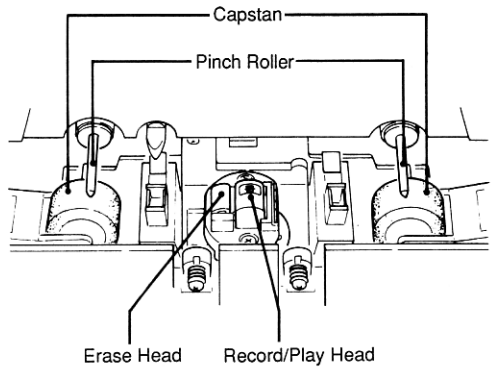
MAINTENANCE

The heads and tape path should be cleaned and demagnetized periodically.

Cleaning Tape Path

- Apply head cleaning fluid* to a cotton bud or soft cloth, and lightly rub the heads, capstan and all metal parts in the tape path.
- Also clean the pinch roller using rubber cleaning fluid*.

* Both are available in TEAC Tape Recorder Cleaning Kits HC-1 and RC-1 in the U.S.A. or TZ-261 in other areas.



Demagnetizing Heads

Be sure that the power is off, then demagnetize the heads using a TEAC E-3 demagnetizer. For details of its use, read its instructions.

TROUBLESHOOTING

Basic troubleshooting of a cassette tape deck is similar to troubleshooting any other electrical or electronic equipment. Always check the most obvious possible causes first. To give you a few ideas of what to look for, check the following:

- No power: Is the power cord connected?
- Tape begins running when power is turned on: Is the TIMER function on?
- No audio output: Have all connections been made correctly?
- Low sound quality: Are the heads dirty or magnetized? Are you using good quality tape? Has the correct NR System been selected?
- Impossible to enter the record mode: Are the record protection tabs of the cassette in place?

DOLBY HX PRO

Dolby HX Pro is an "active bias" technique that can improve the quality of audio tape recordings. High-level high frequencies can be recorded more accurately, without sacrificing the signal-to-noise ratio, while such side effects of tape saturation as distortion are reduced.

What Is Bias?

Bias is a very high-frequency signal generated within a tape deck and recorded on the tape simultaneously with the program material. This inaudible signal allows low noise, low distortion recording and a flat frequency response. Different magnetic tape formulations require differeent amounts of bias for optimum performance. If the bias level is too high, the high-frequency Maximum Output Level (MOL) decreases.

The Problem of Self-Bias

Unfortunately, the bias level is often influenced by the signal being recorded. The high frequency components of some music act as bias. This unpredictable source of bias is added to the existing bias, resulting in a loss of high-frequency response. As the high-frequency contents of the signal increase, the ability of the recorder to record high frequencies (MOL) decreases. This phenomenon is called self-iasing.

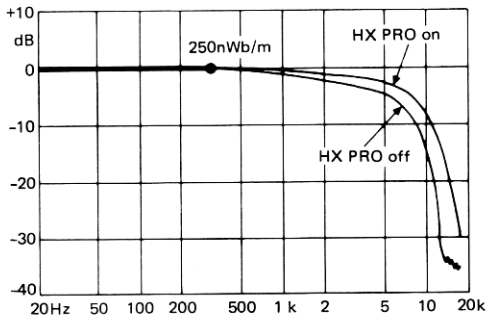
The Dolby HX Pro Solution

Dolby HX Pro monitors the high-frequency contents of the program and adjusts the recorder's bias oscillator to maintain a constant total bias level. The result is improved high-frequency response and lower distortion. Depending on the type of tape, the improvement in headroom (dynamic range) can be 6 dB or more.

The Benefits

With Dolby HX Pro, it is easier to make more accurate recordings of music which contains high-level high frequency components. The improvement is similar to that of high-performance tape over conventional tape, and regardless of the type of tape used, the results will sound better.

Most important of all, Dolby HX Pro requires no decoding process. Once a tape is recorded with it, the improvement will be realized when playing the tape back on any machine.



Example of improved frequency response using Dolby HX Pro function

SPECIFICATIONS

Track System : 4-Track, 2-Channel Stereo
Heads : 1 Playback (Rotary, DECK I) 1 Erase and 1 Record/Playback (Rotary, DECK II)
Type of Tape :
Cassette tape C-60 and C-90 (Philips type)
Tape Speed :
4.76 cm/sec (1-7/8 ips), 9.5 cm/sec (3-3/4 ips) (High speed dubbing only)
Motors : 4; 2 DC servo motors and 2 DC motors (2 ea. deck)
Wow and Flutter (WRMS) : 0.06 %
Frequency Response (Overall, -20 dB) :
25 - 19,000 Hz, Metal
25 - 18,000 Hz, CrO_2
25 - 17,000 Hz, Normal
Signal-to-Noise Ratio (Overall) :
59 dB (NR off, 3% THD level, Weighted)
69 dB (Dolby B NR on, over 5 kHz)
79 dB (Dolby C NR on, over 1 kHz)
Fast Winding Time :
Approximately 110 seconds for C-60
Line Input : 87 mV, 50 k ohms
Output : Line; 0.46 V for load impedance of 50 k ohms or more
Headphones; 8 ohms
Power Requirements :
120 V AC, 60 Hz, 21 W (U.S.A./Canada model)
240 V AC, 50 Hz, 25 W (Australian model)
Dimensions (W x H x D) :
435 x 147 x 277 mm
(17-1/8" x 5-13/16" x 10-7/8")
Weight (net) : 4.9 kg (10-13/16 lbs.)
Standard Accessories:
Input-output connection cords

- Specifications were determined using metal tape except as noted.
- Improvements may result in specification or feature changing without notice.